

Descriptions and Sketches of two new Species of Araneidea, with Characters of a new Genus. By the Rev. O. P. CAMBRIDGE. Communicated by J. SALTER, Esq., F.R.S. & L.S.

[Read February 4, 1869.]

[PLATE XIV.]

AN interesting and valuable collection of Ceylon Araneidea, received during the past year from Mr. G. H. K. Thwaites, has enabled me to supply what has been felt by arachnologists as a "want" in the practical study of araneology, namely, details of a veritable "four-eyed" spider. Hitherto* all known spiders have been characterized by the possession of two, six, or eight eyes; it was not unlikely, therefore, nor altogether unscientific, *a priori*, to suspect the existence, and to expect at some time or other the discovery, of spiders with four eyes, which should fill up the gap between those with two and those with six eyes. Thus our veteran and acute arachnologist, Mr. Blackwall (having examined one of the species presently to be described, and confirmed my views of its very striking characters), writes me word that *he* has "always suspected the existence of spiders with four eyes," and considers that this character should form the basis of a new "Tribe" of the order Araneidea; that order, then, would, in this view, comprise four Tribes:—i. *Binoculina*, with *two* eyes; ii. *Quaternoculina*, with *four* eyes; iii. *Senoculina*, with *six*; and iv. *Octonoculina*, with *eight* eyes. The scientific propriety of this division, simple and obvious as it is, is more than questionable; it is not, however, my purpose to discuss here the systematic value of the mere number of the eyes, the object of the present paper being chiefly to characterize the genus and give some details of the species formed by the four-eyed specimens now under consideration: these present, beyond the number of the eyes, some other very remarkable characters, one of which is, as far as I am aware, unique—that is,

* Rafinesque, in 'An. Gén. des Sc. Phys.' tom. viii. p. 88, 1821, described a four-eyed spider—"Tessarops;" but see a communication upon this by the great French arachnologist, Baron Walckenaer (An. de la Soc. Ent. de France, 1833, p. 441), where the correctness of Rafinesque is impugned in strong language, and his four-eyed spider disposed of as the result of careless and inexact observation. Rafinesque, we may conclude, bore no very high character as a natural-historian, since the Baron speaks of "la parole perilleuse de Rafinesque;" there seems no doubt, in this case, but "Tessarops," whatever it might have been, at all events was *not* a "four-eyed" species of Araneidea.

the absence of a sternal plate, the legs being simply articulated to the face of the lower side of the cephalothorax, which forms the sternal surface; further observations on this unique structure are given below, in the details of generic and specific characters; the form of the cephalothorax is also different from that of any other species known to me.

Respecting the position of these four-eyed spiders in a systematic arrangement of the Araneidea, I am inclined to think that their "family" affinities are to be found with the genera *Mithras* and *Uloborus*; the number of eyes (taking that as a simple generic character), together with the sternal peculiarity above noticed, and the form of the maxillæ and labium appear to constitute a genus among the best-characterized of the older Araneidea; for this genus I propose the name *Miagrammopes*; and the group formed by it in conjunction with the two genera above mentioned would have strong affinity with the family Epeirides. Nothing is yet known of the habits or of the kind of web spun by these spiders; but I should confidently expect that they will be found to spin a *geometric* web, resembling in this respect spiders of the genera with which I have provisionally allied them, *Mithras* and *Uloborus*; like these, they possess the peculiarity (possessed however also by many other spiders) of a "calamistrum" or combing-apparatus, upon the metatarsi of the fourth pair of legs, as well as the supernumerary spinner (or pair of spinners) always found where the calamistrum exists; but future observation must show in what way the calamistrum is used in the construction of their snares. Its use in some spiders of the genus *Ciniflo* has been ably detailed by Mr. Blackwall, to whom the first discovery of the calamistrum and its economic importance is due (Linn. Trans. vol. xvi. pp. 473-4, tab. xxi. figs. 2, 3, and vol. xviii. p. 224); but no observations have yet, as far as I know, been made upon this point in respect to *Mithras* and *Uloborus*. Two species of the latter, *Uloborus Walcknaerius* (Koch) and *Uloborus plumipes* (Koch), came under my notice during a tour in Syria and Palestine in 1865; but the spider was always stretched motionless in or near the centre of its web, and was difficult to be distinguished as it lay among the very similarly coloured débris of insects, enveloped in grey flocculus. The general use of the calamistrum seems to be to card or tease a peculiar kind of silk drawn or emitted from the supernumerary spinners; the flocculus thus formed being of a tenacious character, is pro-

bably disposed about the rays of the snare, where it would materially assist in the entanglement and overpowering of the captured prey.

The above remarks on the affinities of the spiders forming the subject of the present communication are merely thrown out as queries; for at present I do not feel sufficiently assured upon the different considerations which enter into the question, to justify the establishment of a new *family* of Araneidea, while, at the same time, I confess myself quite unable to include them in any family hitherto characterized.

Gen. nov. **MIAGRAMMOPES.**

Characters of genus :—

Cephalothorax oblong, rather broader in front than behind; upper surface rather flat; the caput has its fore corners roundly truncate, but no lateral compression.

Eyes four in number, in a single row across the caput.

Legs very unequal in length, extended straight forwards and backwards, peculiarly articulated upon the lower surface of the cephalothorax, and without any sternal plate properly so called; those of 1st pair much the longest and strongest, and inserted near together and close behind the maxillæ; those of 2nd pair inserted immediately behind and beneath those of 1st; those of 3rd pair rather the widest apart, and much the shortest; those of 4th pair nearest together, their basal joints being almost contiguous. The tibiæ, metatarsi, and tarsi of the 1st pair thickly furnished with hairs, of which the most conspicuous form a coarse fringe on their lower sides; a similar fringe is on the lower side of the metatarsi of the 4th pair; and a strong calamistrum on the upper surface of the same joint; each tarsus ends with three strongly curved claws, two superior, and one inferior, all dentated on their inner surface, though the dentation of each differs from that of the others.

Palpi short, terminating with a strong curved black claw peculiarly pectinated, some of the pectinations being nearly as strong as the claw itself and giving it a clubbed appearance.

Falces small and projecting.

Maxillæ long, tolerably strong; slightly inclined towards the labium; obliquely rounded on the outer side at their extremities, which are a little enlarged on the same side; and their extreme points project very slightly beyond the falces.

Labium elongate, and pointed at the apex.

Abdomen long, narrow, but enlarged towards the middle. Spinners prominent, six, in three pairs, with a very short one beneath them having a large curvilinear-triangular surface; this represents the fourth pair, always as yet found in spiders which possess a calamistrum; in most species this supernumerary spinner gives evidence of its being formed by the union, throughout their entire length, of two spinners; but in the present no trace is visible of any such union.

MIAGRAMMOPES THWAITESII, sp. nov. Pl. XIV. figs. 1-12a.

♀ adult, length 4 lines.

Cephalothorax oblong, rather broader in front than behind; each fore corner is obliquely and roundly truncate; the upper surface rather flattened; and between the caput and thoracic region there is no difference in height, each part being on the same level and passing insensibly into the other; but traces of division may be seen in some irregular grooves and indentations behind the eyes; the lateral margins are somewhat flap-shaped and seem to overlap the lower side a little, and the hinder extremity is abruptly truncated. The colour of the cephalothorax is a dull yellow with a slightly brown tinge; it is rather densely clothed with short yellowish-brown and yellow-grey hairs, somewhat approaching a coarse pubescence. A few short erect black stumpy bristles or dwarf spines are also visible here and there over the upper surface.

Eyes not very unequal in size; four in number, in a single nearly straight transverse row, completely spanning the widest part of the caput; the laterals are the largest and are seated on the sides of a dark tubercular eminence, close behind the lower angle formed by the truncation of the fore corners of the caput; the space between the two central eyes is greater than that between each and the lateral on its side.

Legs extended forwards and backwards in a straight line, very unequal in length and strength; their relative length is 1, 4, 2, 3: those of the first pair exceed the cephalothorax and abdomen in length, and are also disproportionately strong in comparison with the rest; their tibiæ, metatarsi, and tarsi are thickly furnished with hairs, of which a long coarse fringe of yellowish ones is very conspicuous on their lower sides: these legs project

forwards almost contiguously, in a line with the body of the spider; those of the 4th pair are about one-fourth shorter than those of the 1st; their tibiae are long and rather bent; the metatarsi are strong and furnished on their upper sides with a strong calamistrum throughout the entire length of the joint, and on their undersides with a fringe of long coarsish yellow-grey hairs, among which is a longitudinal row of short dark bluntish spines; the remaining joints of this and the 1st pair, as well as the legs of the 2nd and 3rd pairs, are sparingly furnished with fine yellowish hairs. The legs of the 2nd pair are comparatively slender and not much more than half the length of the first pair; those of the third pair are a little shorter, and less strong than those of the second; beneath the femora of the 2nd pair is a longitudinal row of slender erect hairs. Each tarsus ends with three strongly curved claws (2 superior, 1 inferior), all of which are pectinated but differ in the character and number of their pectinations; grouped near and around these claws are some spines and bristles of different kinds, which make it difficult to observe the claws without dissection; there is also a sharp-pointed, nearly straight, and bluntly pectinated supernumerary claw near the other three. The articulation of the basal joints of the legs is very peculiar; instead of being, as in all others of the Araneidea, arranged round a regular sternal plate, they are simply articulated in two nearly straight lines upon the surface of the lower side of the cephalothorax; those of the 3rd pair are the widest apart, and those of the 4th nearest together. In colour the legs are similar to the cephalothorax; but the upper sides of the first pair, together with the genua, and a small patch at the upper extremities of the tibiae of the 4th pair, are strongly suffused with blackish brown.

Palpi, short, slender, hairy, and terminating with a strong curved pectinated claw, some of the pectinations being very strong and giving it a somewhat clavate appearance.

Falces not very strong, but projecting; they have a few small teeth near the extremity on their inner surface, and terminate in a small curved fang, bearing an appearance of blunt dentation on the basal half of the inner side.

Maxillae long, strongish, nearly parallel, the inner margins slightly inclined towards the labium, and obliquely rounded at the outer extremities, where they are broader than at the insertion of palpi.

Labium elongate-oval, pointed at the apex ; this part, together with the falces, maxillæ, and palpi, are rather paler in colour than the cephalothorax.

Sternum furnished sparingly with short hairs, and of a yellowish colour : the peculiarity of the absence of a regular sternal plate has been noticed above in describing the mode in which the legs are articulated to the sternal surface.

Abdomen long and narrow ; at least three times the length of the cephalothorax, to which it is equal in breadth at its fore extremity ; thence it narrows a little ; but quickly enlarging both laterally and above, it then lessens gradually to its hinder extremity, which is abruptly truncated, the upper margin being a little prominent and furnished with a rather dense fringe of coarsish yellow-brown hairs. The colour of the abdomen is a dull brownish yellow, freckled and spotted with whitish cretaceous-looking spots and markings, and each side has a blackish patch near the elevated part ; a narrow longitudinal dull brown band or streak bisects the upperside, fining down to a slender line near the spinners ; from this streak, a short one on either side branches off at the broadest part of the abdomen, and a little further on a slender line of a similar colour issues at first obliquely on either side ; and then running nearly parallel to the central streak, each joins, in an acute angle near the extremity of the abdomen, another fine oblique line emanating from the medial line. The abdomen is clothed, but not very densely, with short yellowish-brown, yellowish-grey, and whitish hairs, mingled with which are a few short stumpy, but not strong, black spines or spiny bristles. The underside has a broad longitudinal medial brownish band, bisected throughout its length by an irregular streak composed of whitish-yellow spots. *Spinners* prominent ; consisting of the normal 3 pairs with a supernumerary one, very short and of a large somewhat curvilinear triangular surface, immediately beneath the rest (respecting its peculiarities see above, *characters of genus*) ; the superior pair are longest and triarticulate, the central pair small and not easy to be seen ; close above the superior pair, near the anus, is a longish slender biarticulate (?) process, surmounted with hairs and a compact group of spines.

An adult female of this remarkable spider was received from Mr. G. H. K. Thwaites, among many other new and rare species kindly collected for me early in the past year in Ceylon by that

gentleman, in compliment to whom I have bestowed upon it the specific name of *Thwaitesii*. Subsequently another example (an immature ♀) was received in a second collection, also from Mr. Thwaites.

MIAGRAMMOPES FERDINANDI, sp. nov. Pl. XIV. figs. 13, 14, 15.
♀ adult, length $4\frac{1}{2}$ lines.

Similar to *M. Thwaitesii* in general form, size, and structure, the present species differs in the form, colours, and markings of the abdomen, as well as slightly in the relative size and position of the eyes, the two middle ones being rather smaller in proportion to the laterals, and slightly wider apart; *i.e.* each is nearer to the lateral eye on either side than in *M. Thwaitesii*; the line formed by the four eyes is also a little more curved forwards.

The *Abdomen* is rather longer and narrower, less generally protuberant above, though rather abruptly elevated near its fore extremity; there are also two short, blunt, somewhat conical eminences (one on either side) about one third of the distance towards the spinners. The whole spider is of a blackish-brown colour, tinged in parts with yellowish, and more or less densely clothed with a short pubescent-like covering of brown, yellowish, white, and grey hairs, among which are dispersed a few short stumpy spine-like bristles. The tibiae, metatarsi, and tarsi of the 1st pair of legs are fringed with long coarse yellowish hairs, like those on the same parts of *M. Thwaitesii*; and, also as in that species, the metatarsi of the fourth pair are fringed in a similar manner beneath, and furnished with a calamistrum above.

The *Abdomen* has on its upperside three pairs of short, oblique whitish-yellow stripes, formed by cretaceous-looking spots; these stripes are arranged obliquely, two and two opposite each other, each pair thus forming a sort of broken chevron, with its broken angle directed backwards. The foremost pair of these stripes is situated upon the most elevated part of the abdomen; the other two pairs occur at similar intervals between the first pair and the hinder extremity of the abdomen; immediately behind each of those of the first pair is a largish black suffused patch, and each of the other stripes has its hinder margin blackish; from the fore extremity of each of the middle pair of stripes, a narrow black one runs obliquely across the side of the abdomen towards its hinder part. Though very nearly allied to *T. Thwaitesii*, this species will thus be easily distinguished by the above differential characters.

Two adult females were received from Mr. Thwaites, one in each of the collections mentioned above as containing the examples of the former species. I have conferred upon the present species the specific name of *Ferdinandi*, in acknowledgment of the great interest and assiduity shown by M. Ferdinand (a Cingalese officer in the employment of Mr. Thwaites) in the formation of the above valuable and interesting collections.

EXPLANATION OF PLATE XIV.

Miagrammopes Thwaitesii.

- Fig. 1. Spider, much enlarged: *a*, Calamistrum.
 2. Underside of spider, with legs and abdomen shortened.
 3. Underside of cephalothorax, each leg reduced to two joints.
 4. Maxillæ and labium.
 5. Spider, enlarged, in profile.
 6. A portion of spider, enlarged, in profile.
 7. Cephalothorax, in profile, without legs.
 8. View of spinners: *a*, process above anus; *b*, supernumerary spinner.
 9. Natural length of spider.
 10. Portion of leg of 2nd pair, underneath.
 11. Length of the legs.
 12. Spider, of natural size.
 12*a*. Extremity of palpus.

Miagrammopes Ferdinandi.

13. Cephalothorax and abdomen.
 14. Portion of cephalothorax and abdomen, in profile.
 15. Natural length of spider.

A List of Spiders captured by Professor E. PERCEVAL WRIGHT, M.D., in the province of Lucca, in Tuscany, in the summer of 1863, with characters of such Species as appear to be new or little known to Arachnologists. By JOHN BLACKWALL, F.L.S.

[Read February 24, 1869.]

(PLATES XV. & XVI.)

Tribe OCTONOCULINA.

Family LYCOSIDÆ.

Genus LYCOSA, Latr.

LYCOSA FAMELICA, Koch, *Arachn.* Band v. p. 123, t. 174. f. 417. Pl. XV. fig. 1.

Length of the male $\frac{3}{8}$ in.; of the cephalothorax $\frac{5}{16}$, breadth $\frac{1}{4}$; breadth

